MATH 1643: Quiz #4

Show every step of your work. Write your answer in the given space on the right.

1. Find \((f \circ g)(x)\) and the domain of \((f \circ g)(x)\) for \(f(x) = x^2 - 3x\) and \(g(x) = \sqrt{x + 2}\). [20 pts]

\[
(f \circ g)(x) = \text{__________}
\]

domain: \text{__________}

2. Find \((f \circ g)(x)\) and the domain of \((f \circ g)(x)\) for \(f(x) = \frac{1}{x - 1}\) and \(g(x) = x - 1\). [20 pts]

\[
(f \circ g)(x) = \text{__________}
\]

domain: \text{__________}
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REVIEW QUESTIONS FROM EXAM 1:

3. Rationalize the denominator: \[ \frac{4}{\sqrt{7} - \sqrt{3}} \] [20 pts] ____________________

4. Simplify: \[ \frac{b^3 - 8}{b^2 - 4} \] [20 pts] ____________________

No work needed for the following problems:

5. Write the range of the following function in interval notation: \( h(x) = \sqrt{x - 1} \) [10 pts] ____________________

6. Is the slope of the line \( x=3 \) positive, negative, undefined, or zero?: [10 pts] ____________________